

Climate change in Danish impact assessment practice: The ugly duckling?



Ivar Lyhne - with Lone Kørnøv

Associate professor, the Danish Center for Environmental Assessment

Denmark

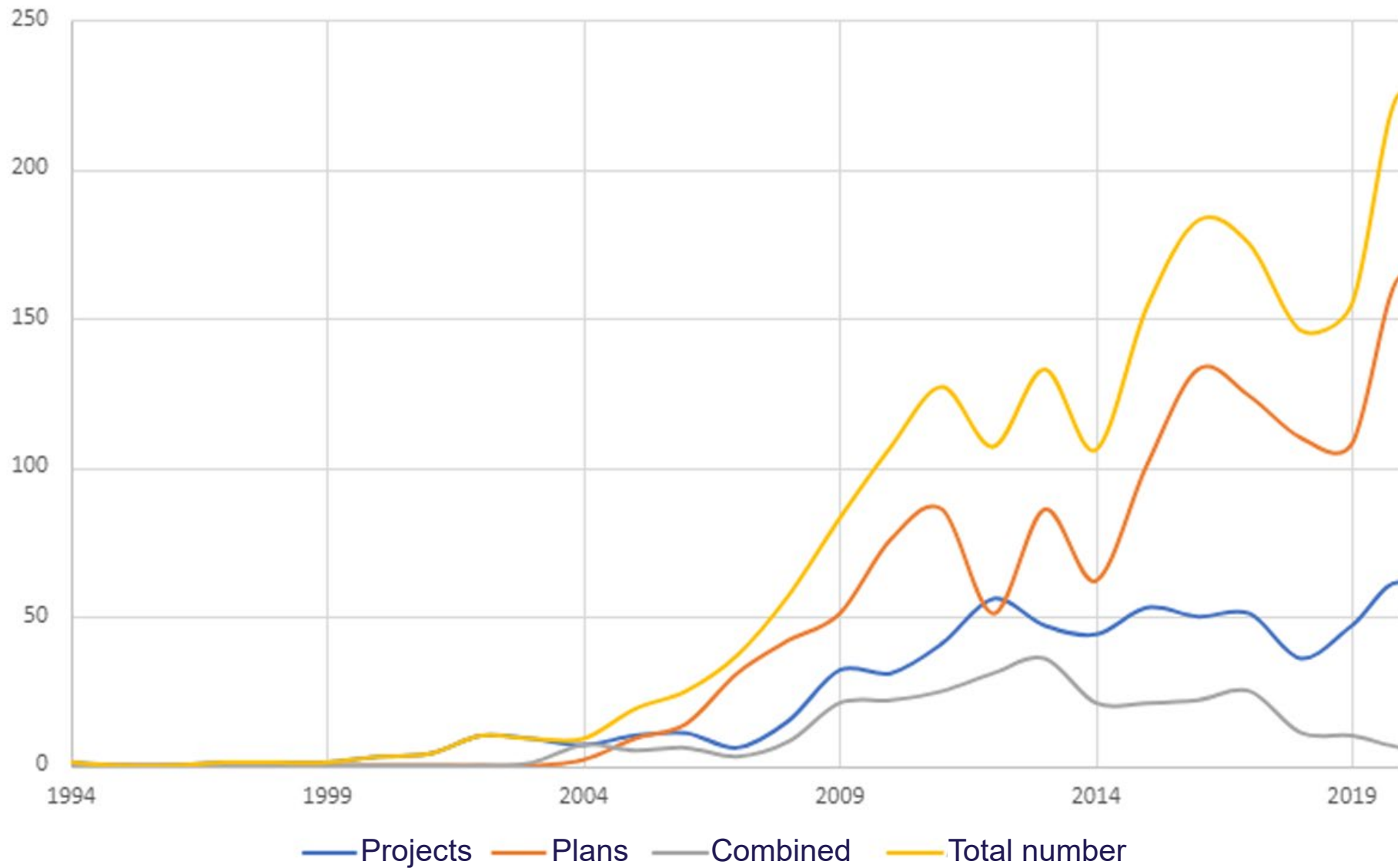
lyhne@plan.aau.dk

[LinkedIn](#)

[The Danish Center for Environmental Assessment, Aalborg University](#)

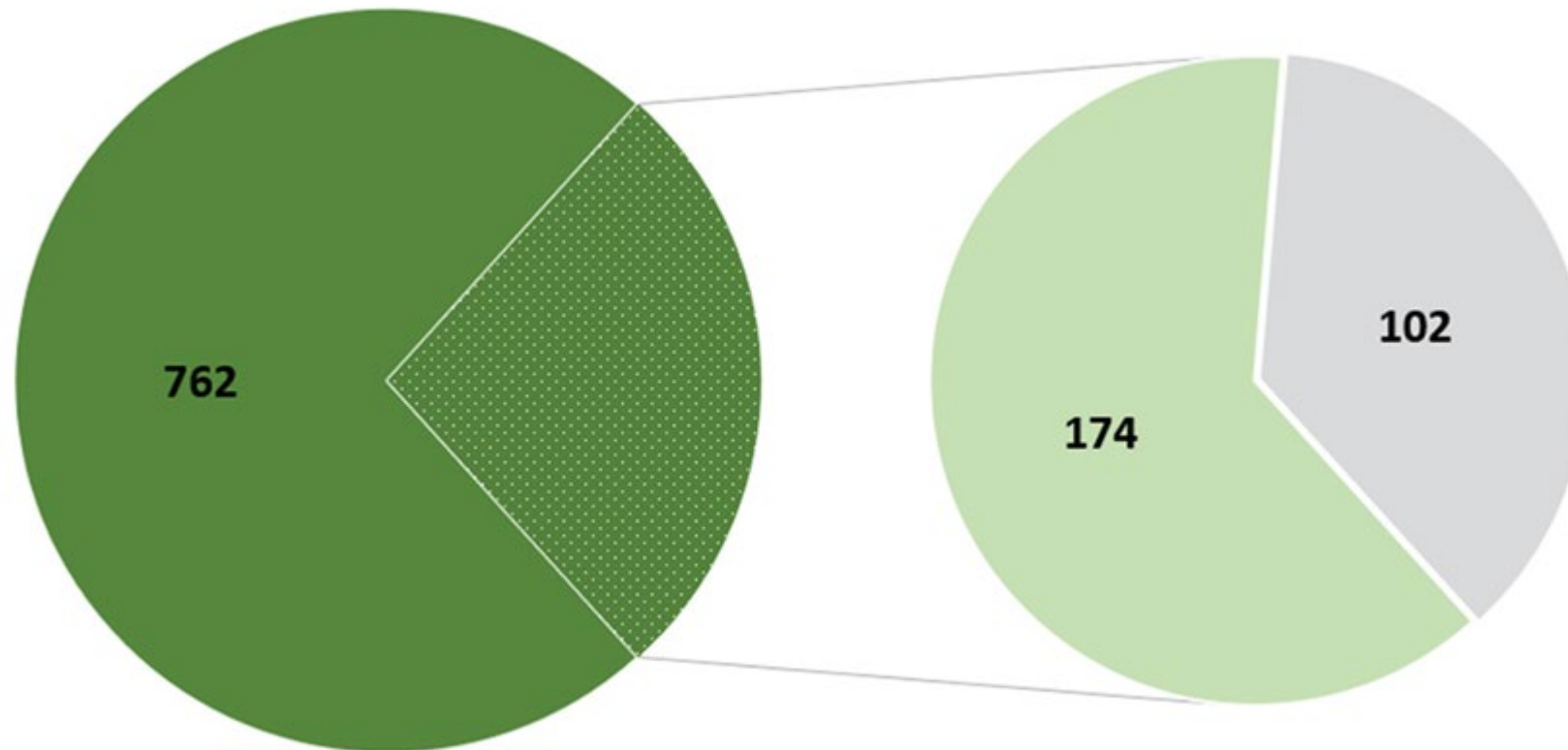


EA in DK



How often are GHG considered in DK EAs?

The applied data sample of the study

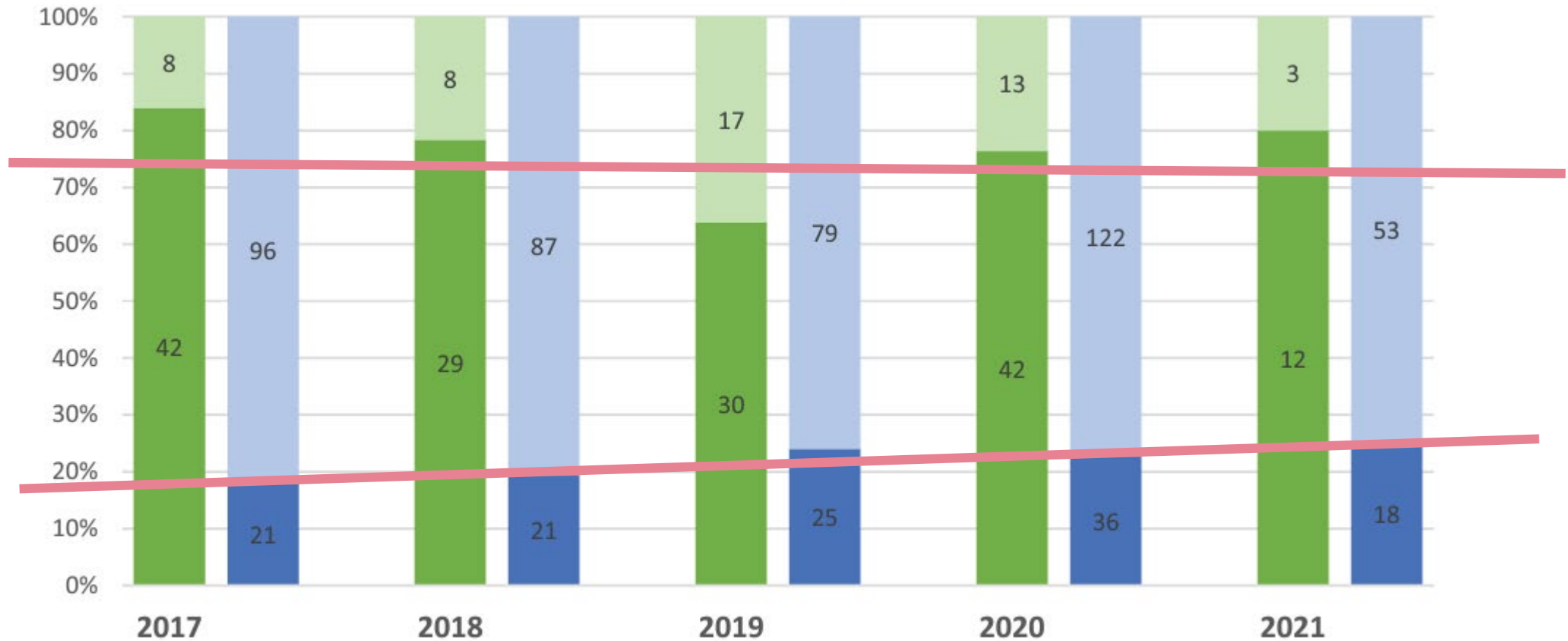


- Danish EA reports (published 2017-2021)
- Reports that include GHG emission assessments

- Share of reports published 2017-2019
- Share of reports published 2020-2021

Is it getting more frequent over time?

Distribution of EA reports according to year of publication



For what activities are GHG considered?

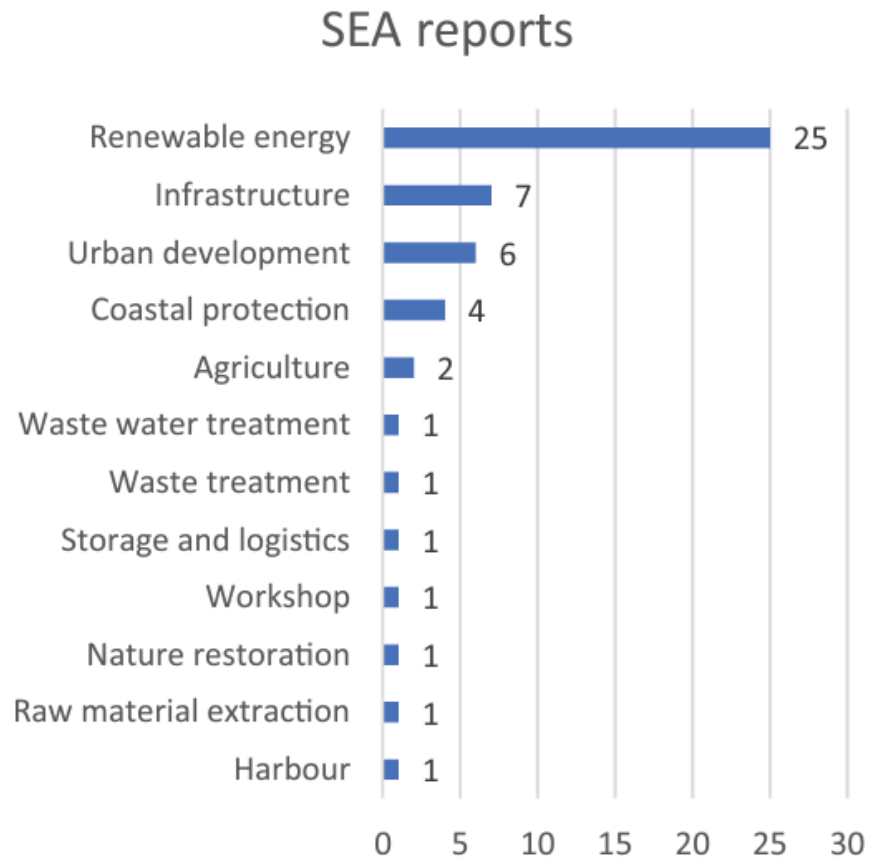


Figure 4. Distribution of SEA reports according to plan types.

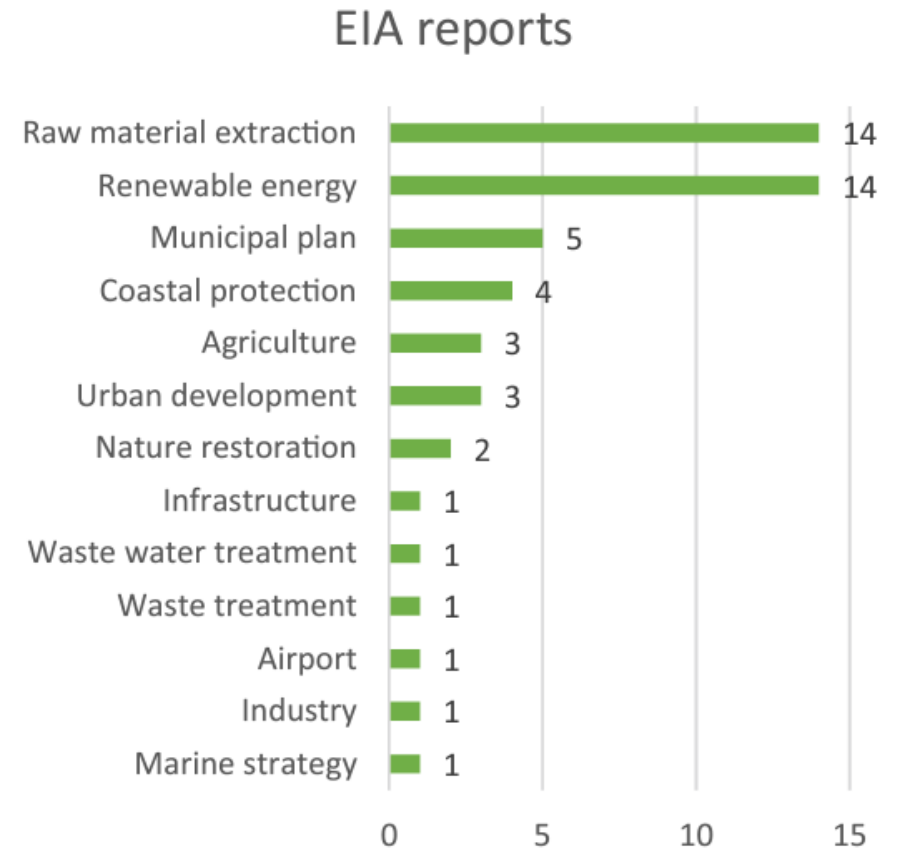


Figure 3. Distribution of EIA reports according to project types.

How often is GHG emissions significant?

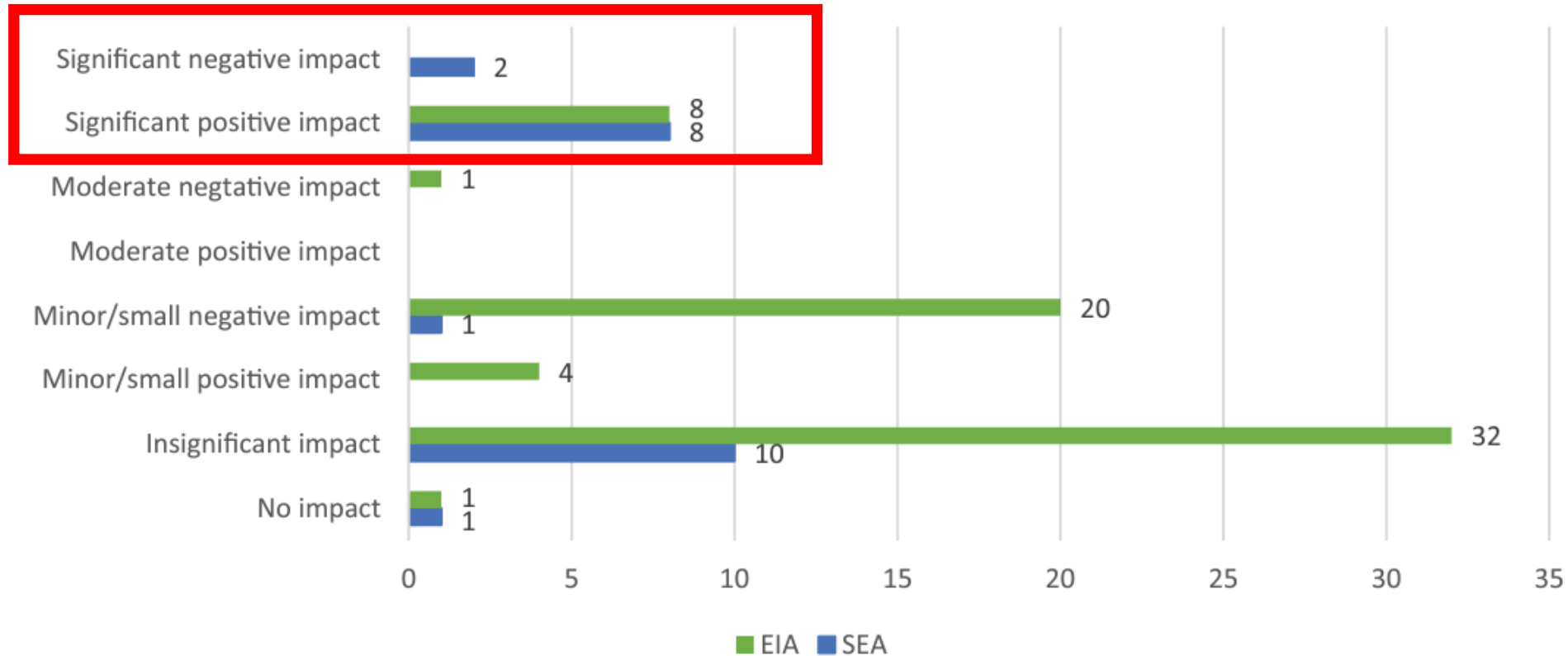


Figure 8. Distribution of 88 significance determinations for GHG emissions according to the determined degree of significance.

Why not significant?

EIA of a highway in 2023:

The total greenhouse gas emission from the construction of the highway and tunnel is estimated to 262.733 tons CO₂

“Compared to Denmark’s yearly CO₂ emissions, the CO₂ impact from the project accounts for approx. 0.2%. The CO₂ emissions in the construction phase are therefore considered insignificant compared to global and regional impacts.”

Transformation process

Training



AALBORG
UNIVERSITET

UDDANNELSE FORSKNING SAMARBEJDE OM AAU NYHEDER

SÆRSKILT MODUL

LIVSCYKLUSVURDE- RING (LCA) MED FOKUS PÅ KLIMAAFTRYK



Guidance

VÆSENTLIGHED AF KLIMAPÅVIRKNINGER

Tilgange til at vurdere væsentlighed af
drivhusgasudledninger i miljøvurderinger



Innovationsfonden




Approaches to significance assessment


Assessment based on vulnerability	Assessment based on amounts	Assessment based on political targets	Assessment based on boundaries	Assessment based on benchmark	<i>Assess based on...</i>
The climate is under pressure and very vulnerable	It is possible to make an absolute threshold value	Emissions must be in accordance with political targets	An area or a sector can only emit X tons	We constantly need to improve performance	<i>Point of departure</i>
IPCC's report, etc.	The Danish Energy Agency's guidance	IEMA's guidance	DK version of C40 framework	BAT/BREF documents	<i>Relevant documents</i>
The climate is so vulnerable that all emissions are significant	A threshold at 2/10/20,000 tons CO ₂ determines significance	If an emission is above emission reduction scenarios, then it is significant	An increased emission means that something else must be reduced – and thus significant	If an emission is higher than BAT, then it is significant	<i>Logic</i>
Climate change is taken seriously	An absolute measure is “easy” to work with	Compliance with political targets	Prioritization of emissions	A point of departure for improving plans and projects	<i>Strengths of the approach</i>
If everything is significant, we dilute the concept	Is 1 (or few) thresholds applicable to any activity?	How to determine the allowed emission of an activity based on targets?	How to determine boundaries	An improvement may not be ‘enough’	<i>Weaknesses of the approach</i>

References

IMPACT ASSESSMENT AND PROJECT APPRAISAL
2024, VOL. 42, NO. 1, 30-42
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IAIA
International Association
for Impact Assessment

 Taylor & Francis
Taylor & Francis Group



Greenhouse gas emissions in Danish environmental assessments: a critical review

Kasper Smetana Christensen^a, Sebastian Moeslund Wael^b, Laura Hillingsø Munk^c, Ivar Lyhne^c and Lone Kørnøv^c

^aConsultant, Nature and Areas, COWI, Denmark; ^bConsultant, Society, Economics and Environment, COWI, Denmark; ^cThe Danish Center for Environmental Assessment, Aalborg University, Denmark

ABSTRACT
Climate change is a key focus in society, and environmental assessments (EAs) are seen as key instruments to inform decision-makers about climate consequences of plans and projects. Previous research has, however, identified shortcomings of practice of assessing greenhouse gas (GHG) emissions and their significance, and this paper aims to unfold current practices with a focus on Denmark. From an initial set of 762 Danish EA reports published between 2017 and 2021, researchers scrutinized 102 of them to assess their handling of GHG emissions. The findings show that climate change mitigation receives continuous sparse attention and is only to a limited extent included in the scope of the EA. Moreover, analysis of GHG emissions only involves few phases in a life-cycle perspective, GHG emissions are seldomly deemed significant, and justifications provided are varied and frequently inadequate. The results contrast with the increasing focus in society on climate change as a pivotal concern across numerous societal activities. The repercussions of this current practice are discussed. Finally, a research agenda to support better practice is outlined.

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KEYWORDS
Climate change; significance; life-cycle thinking; EIA; GHG emissions; SEA

Highlights
Increased focus on climate change has not had a major impact on Danish EA practice. Increasing GHG emissions are almost never assessed as significant. Nine types of justifications for the significance of GHG emissions are identified. Assessing GHG emissions directly against national total emissions is misleading.

Christensen, K. S., Wael, S. M., Munk, L. H., Lyhne, I., & Kørnøv, L. (2024). Greenhouse Gas Emissions in Danish Environmental Assessments: A Critical Review. *Impact Assessment and Project Appraisal*, 42(1), 30-42. <https://doi.org/10.1080/14615517.2024.2308443>

Munk, L. H., Wael, S. M., Christensen, K. S., Lyhne, I., & Kørnøv, L. (2022). *Praksis for vurdering af klimapåvirkninger i danske miljøvurderinger*. <https://dreamsproject.dk/download/3102/>

Lyhne, I., Kørnøv, L., Munk, L. H., Christensen, K. S., & Wael, S. M. (2023). *Væsentlighed af klimapåvirkninger: Tilgange til at vurdere væsentlighed af drivhusgasudledninger i miljøvurderinger*. <https://dreamsproject.dk/wp-content/uploads/2023/09/VAESENTLIGHED-AF-KLIMAPAVIRKNINGER-pdf.pdf>

Greenhouse gas emissions per capita and per unit of GDP in purchasing power standards in 2008 <https://www.eea.europa.eu/data-and-maps/figures/greenhouse-gas-emissions-per-capita-1>

Overshoot Day in Denmark 2024: Our natural resources have been depleted, <https://insidesystems.com/blog/overshoot-day-in-denmark-2024/>

3. Limfjordsforbindelse - Opdatering af VVM for Egholmlinjen Miljøkonsekvensrapport, https://api.vejdirektoratet.dk/sites/default/files/2021-02/Milj%C3%B8konsekvensrapport_Egholmlinjen.pdf

LIVSCYKLUSVURDERING (LCA) MED FOKUS PÅ KLIMAAFTRYK, <https://www.aau.dk/uddannelser/efteruddannelse/enkeltfag-kurser/livscyklusvurdering-lca-med-fokus-pa-klimaaftryk>

Take-aways and discussion

- EA have a role in GHG efforts – but do we make use of it?
- Overview of (bad) practice motivates improvements of practice
- Overview of approaches to assess significance provides very good discussions among practitioners
- Cross-country exchange of status, approaches, and experiences would be highly interesting and useful!

Let's continue the conversation!

Post questions and comments in the IAIA24 app.



#iaia24

Ivar Lyhne

Associate professor, The Danish Center for Environmental Assessment, Aalborg University

Denmark

lyhne@plan.aau.dk

[LinkedIn](#)

[The Danish Center for Environmental Assessment, Aalborg University](#)